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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,693	01/30/2002	Raburn L. Hughey	031264.014CIP	8552

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EXAMINER

NORRIS, JEREMY C

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/060,693

Applicant(s)

HUGHEY ET AL.

Examiner

Jeremy C. Norris

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 20-39 is/are rejected.
- 7) ☒ Claim(s) 16-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

Applicant is advised that should claim 23 be found allowable, claim 24 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 14, 15, and 25-39 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Via their dependency on claim 1, claims 14, 15, and 25-39 contain the limitation "said plurality of layers being stacked on said core member without an insulating layer between the plurality of layers and the core member" stated in claim 1 and the limitation "wherein a layer of dielectric material separates the core member from the layer of tape shaped wires closest thereto". These limitations are in direct conflict with each other. It would be impossible for one having ordinary skill in the art to make and use an invention having this conflict. Similarly, the

Examiner is unable to determine the scope of the invention Applicants are attempting to claim. Hence, the claims have been withdrawn from further consideration on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-6, 11, 12, and 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,313,408 (hereafter Fujikami-408).

Fujikami-408 discloses, with particular reference to figure 6, a cable employing an oxide superconductor (see col. 2, lines 45-55), comprising: a flexible core member (11, see col. 5, lines 10-15); a plurality of tape-shaped oxide superconducting wires (12) being laid on said core member with tension of not more than 2 kgf/mm² (see col. 5, lines 1-10) wherein each tape-shaped superconducting wire consisting essentially of an oxide superconductor and a stabilizing metal covering the same (see col. 2, lines 50-60), said plurality of tape-shaped superconducting wires forming a plurality of layers each being formed by laying a plurality of said tape-shaped superconducting wires in a side-by-side manner (see figure 6), said plurality of layers being successively stacked on said core member without an insulating layer between the plurality of layers and the

core member (see figure 6), said core member providing said superconducting cable with flexibility, said superconducting cable capable of maintaining a superconducting state at the temperature of liquid nitrogen (see col. 2, lines 10-15), said wires having substantially homogeneous superconducting phases along the longitudinal direction of said wire (see col. 3, lines 5-15), the c-axes of said superconducting phases being oriented substantially in parallel with the direction of thickness of said wire (see col. 3, lines 10-15), said superconducting wires being formed by grains aligned in parallel extending along the longitudinal direction of said wire, said grains being stacked along the direction of thickness of said wire (see col. 3, lines 15-20) [claim 1] having flexibility such that the superconductivity of said cable does not substantially deteriorate upon bending at a diameter of up to about 50 times the diameter of the cable (see cols. 7-9, specifically col. 8, line 60 – col. 9, line 5) [claim 2], wherein said core member is selected from the group consisting essentially of metals, plastics, reinforced plastics, polymers, and composites (see col. 3, lines 50-60) [claim 3], wherein said core member is a pipe having a surface selected from a spiral groove surface, a web-shaped surface, and a mat-shaped surface on its exterior which forms a surface for the tape-shaped superconducting wires (see figures 1, 2) [claim 4], wherein an insulating layer is not present between the plurality of layers of tape-shaped wires (see figure 6) [claim 5], wherein after the first layer of tape-shaped wires are laid on said core member the subsequent tape-shaped plurality of layers are laid on the surfaces formed by the immediately prior layer of tape-shaped wires (see figure 6) [claim 6], further including at least two distinct groups of tape-shaped wire layers (see figure 6) [claim 11], wherein

the lay angle of each successive layer of tape-shaped wires alternate in lay direction or pitch (see col. 5, lines 15-20) [claim 12], wherein the stabilizing metal is selected from the group consisting, of silver, silver alloys, nickel and nickel alloys (see col. 2, lines 60-65) [claim 20], wherein each of said plurality of layers contains at least 2 tape-shaped wires per layer (see col. 3, lines 55-60) [claim 21], wherein each of said plurality of layers contains at least 4 tape-shaped wires per layer (see col. 3, lines 55-60) [claim 22].

Claims 1, 11, 12, 23, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by US 5,932,523 (hereafter Fujikami-523).

Fujikami-523 discloses, with particular reference to figure 14, a cable employing an oxide superconductor (see col. 2, lines 15-25), comprising: a flexible core member (30, see col. 4, lines 40-45); a plurality of tape-shaped oxide superconducting wires (31, 33, 35, 37) being laid on said core member with tension of not more than 2 kgf/mmz (see col. 5, lines 20-25) wherein each tape-shaped superconducting wire consisting essentially of an oxide superconductor and a stabilizing metal covering the same (see col. 3, lines 25-30), said plurality of tape-shaped superconducting wires forming a plurality of layers each being formed by laying a plurality of said tape-shaped superconducting wires in a side-by-side manner (see figure 14), said plurality of layers being successively stacked on said core member without an insulating layer between the plurality of layers and the core member (see figure 14), said core member providing said superconducting cable with flexibility, said superconducting cable capable of maintaining a superconducting state at the temperature of liquid nitrogen (see col. 11,

lines 20-35), said wires having substantially homogeneous superconducting phases along the longitudinal direction of said wire (see col. 3, lines 55-65), the c-axes of said superconducting phases being oriented substantially in parallel with the direction of thickness of said wire (see col. 3, lines 60-65), said superconducting wires being formed by grains aligned in parallel extending along the longitudinal direction of said wire, said grains being stacked along the direction of thickness of said wire (see col. 3, line 65 – col. 4, line 5) [claim 1], further including at least two distinct groups of tape-shaped wire layers (see figure 14) [claim 11], wherein the lay angle of each successive layer of tape-shaped wires alternate in lay direction or pitch (see col. 10, lines 1-10) [claim 12], including an insulating layer between the second and third layer of said plurality of layers [claims 23, 24]

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujikami-523.

Fujikami-523 discloses the claimed invention as described above with respect to claim 12 except Fujikami-523 does not specifically state that each said successive layer consists of at least two tape-shaped wires for a construction of four or more even layers. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to add as many layers as desired to the invention of Fujikami-523 as Fujikami-523 teaches that "several" layers may be employed (see col. 4, lines 55-65). Furthermore, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co, v. Bemis Co.*, 193 USPQ 8.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujikami-408 in view of US 6,305,069 (hereafter Fujikami-069).

Fujikami-408 discloses the claimed invention as described above with respect to claim 1, except Fujikami does not specifically state that the wires are twisted within said tape-shaped stabilizing metal covering. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to twist the wires as it is a practice well known in the art as evidenced by Fujikami-069 (see col. 3, lines 50-65). The motivation for doing so would have been to allow for higher current transmission (see Fujikami-069, col. 6, lines 10-20)

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujikami-408 in view of US 6,284,979 (hereafter Malozemoff).

Fujikami-408 discloses the claimed invention as described above with respect to claim 1, except Fujikami-408 does not specifically state the range of value for the lay angle. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to select a lay angle in the instantly claimed ranges, for example at a value of about 25 degrees as it is well known in the art to do so as evidenced by Malozemoff (see col. 16, line 60 – col. 17, line 5). Moreover, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Allowable Subject Matter

Claims 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claim 16 states the limitation “wherein the at least two distinct groups of tape shaped wire layers carries approximately equal amounts of the current flowing through the cable”. This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 17 states the limitation “wherein the first of the two distinct groups of tape-shaped wire layers carries greater than 50 percent of the current flowing through the cable”. This limitation, in conjunction

with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 18 states the limitation "wherein the second of the two distinct groups of tape-shaped wire layers carries greater than 50 percent of the current flowing through the cable". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 19 states the limitation "wherein the group of tape-shaped wire layers furthest from the core member provides shielding of the current flowing through the other layers and reduces magnetic fields or eddy currents in the cable".

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,337,307 Nakahara et al.,

US 6,448,501 McIntyre et al..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

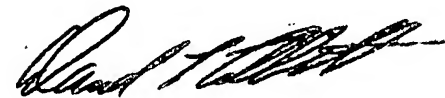
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN
February 22, 2003



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